Chapter 1

Introduction

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The Cerro Grande Fire was ignited as a controlled burn on May 4, 2000, and the next day was officially declared a wildfire. The fire lasted for slightly more than a month and its impacts continue to be felt today throughout Los Alamos County and surrounding areas. When the fire was officially contained on 6 June 2000, it had caused more than one billion dollars in damage. In addition, buildings associated with the Los Alamos National Laboratory (LANL) were destroyed or damaged; the impacts on the Laboratory's natural and cultural resources are only beginning to be understood. Several projects have been, and continue to be, conducted to assess the damage to these resources; the Cerro Grande Fire Assessment (CGFA) Project is one of these projects. The primary goal of the CGFA Project is to determine the degree and extent of fire damage (Figure 1.1) sustained by cultural resources on LANL lands.

To date, there are more than 2,000 known archaeological sites managed by LANL. While a few sites date to as early as 8000 BC, the great majority of these sites represents the ancient Ancestral Puebloan peoples that inhabited much of the Pajarito Plateau from AD 600 to 1500. Some of the archaeological sites belong to the Homestead period (ca. 1890 to 1943). In addition, LANL manages several hundred buildings and structures that have historical significance in relation to the Manhattan Project (1943 to 1946) and the Cold War (1947 to 1989). Because the Cerro Grande Fire burned so intensely, extensively, and for such a long period of time, many archaeological and historic cultural properties were impacted.

This is not the first time that archaeologists have sought to understand the impact of fire on archaeological resources at LANL. After the June 1977 La Mesa Fire, LANL archaeologist Charlie Steen conducted surveys on LANL lands that included burned portions within Technical Areas (TA) 49 and 37 near LANL's southern boundary. Steen [1982:2] notes: *"Most of the Indian house sites were found after the severe June 1977 forest fire—La Mesa fire. Hundreds of acres of Los Alamos lands were burned over during that blaze and I later searched the area to learn whether the intense heat had damaged ruins. The answer to the question was no. The unconstrained heat of the fire had passed into the air and there was no apparent damage to remains that laid below the duff/humus zone of the forest floor.*

It is difficult to understand the basis for Steen's claim of "no impact" by the La Mesa Fire on archaeological resources at LANL. He presumably based his remarks on the survey and on his excavation of a single burned pueblo roomblock (LA 15866A) in TA-49. However, even his photographs of this excavation (Steen 1982:Figs. 44, 46) suggest that the surface stones of the roomblock had been altered by the fire. He curiously also fails to note that a nearby Homestead period cabin structure (LA 15866B) had its wooden elements totally destroyed by the fire, a fact that is evident in photographs of the cabin location (Steen 1982:Fig. 6). Likewise, our current study of TA-49 and TA-37 suggest that erosion is now somewhat rampant in those very archaeological site areas most severely burned by the La Mesa Fire.

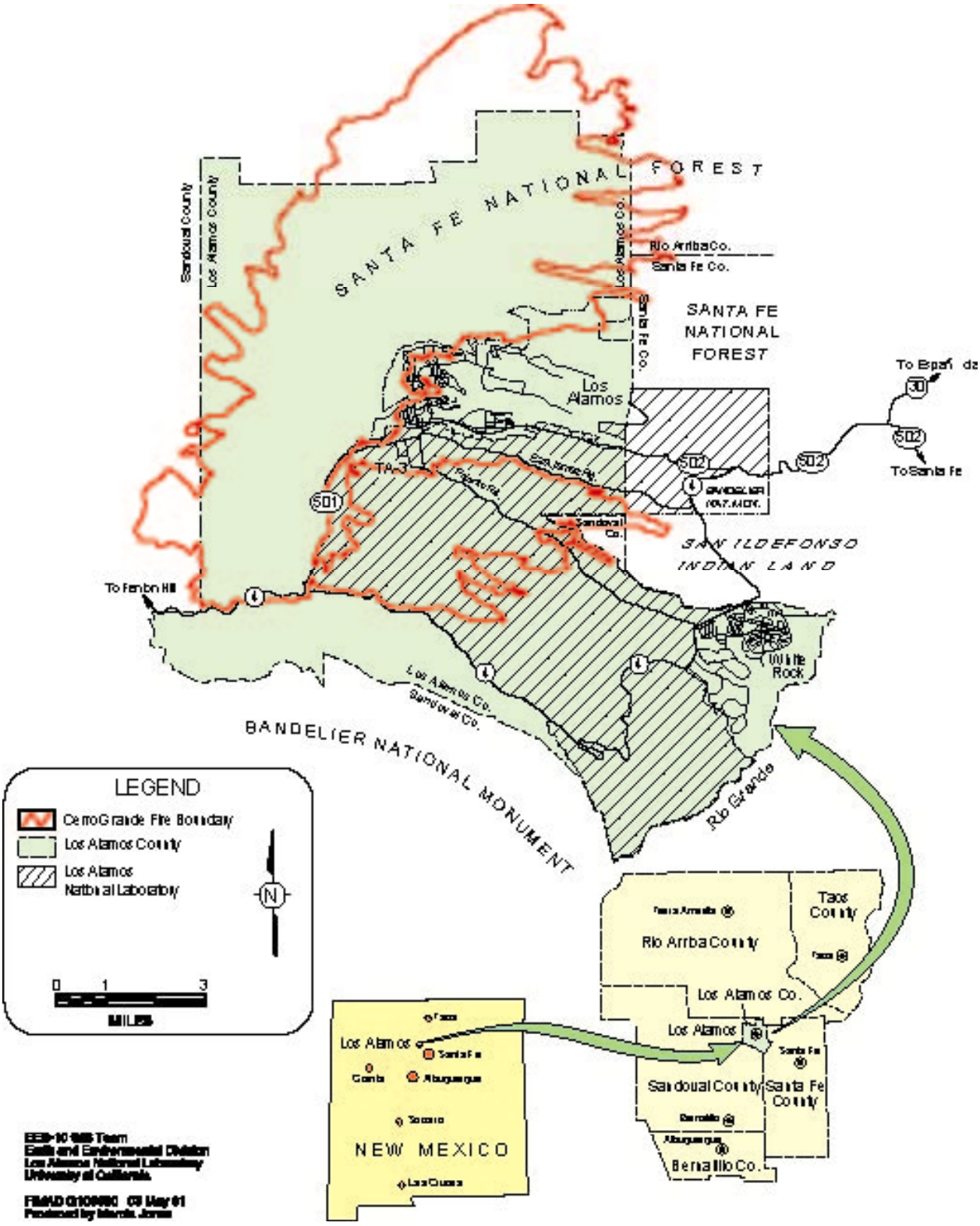

Figure 1.1. Map of Los Alamos, LANL, and the extent of the Cerro Grande Fire.

Indeed, our present study of the impacts of the Cerro Grande Fire indicate that Steen was simply wrong in his conclusion about the damage that wildfire can do to archaeological sites in heavily wooded areas.

Beginning in October 2000, the goal of the CGFA Project was to gather baseline data on the impacts of the fire to all of the 480 sites within the Cerro Grande Fire burn area. Of these, 470 sites were assessed; of these 340 had some type of fire related damage. Field crews consisting of two to four people were employed in the burned areas of the Laboratory equipped with assessment forms, digital cameras, and geographic positioning system (GPS) equipment to locate, map, and record the condition of these sites.

This report presents the results of the 18-month field project associated with the effort. While parts of the CGFA Project are ongoing (e.g., site recording in areas of limited access and the rehabilitation and monitoring of severely damaged sites), the majority of the work is complete. At the same time, all of the sites impacted by the Cerro Grande Fire will continue to be subject to monitoring for many years to come to determine the long-term effects caused by wildfires to cultural resources. For example, the loss of ground vegetation and duff will continue to pose increased threats from erosion to sites within the burn area. Although site rehabilitation can help to mitigate this problem, the effects will indeed be long term. This issue is discussed in greater depth in subsequent chapters.

From the outset, the CGFA Project was intended to provide both a source of data regarding the effects of the Cerro Grande Fire and to assist LANL in its long-term management of its cultural resources. However, it is also hoped that the level of detailed analysis and reporting in this volume can serve as an aid to other land-management agencies and Native American tribes who are themselves concerned about the potential for and effects of wildfire on cultural resources.

Chapters 2 and 3 provide information on the physical and environmental setting of LANL and also provide a general culture historical overview of the Pajarito Plateau. Chapter 4 presents a brief summary of the Cerro Grande Fire itself, in particular, on those days that it burned through various portions of LANL.

Chapter 5 details the data collection methods of the CGFA Project, candidly discussing the logistics of our attempts to record a variety of fire effects on cultural resources, including some of the difficulties and limitations we experienced in creating and applying standard recording procedures. Specific information about the characteristics of archaeological sites is also provided in this chapter.

Chapter 6 presents an analysis of the data, particularly as they relate to the direct effects of the Cerro Grande Fire and fire-suppression activities on cultural resources at LANL. Preliminary analyses were presented on November 10, 2001, at the Conference on Wildfires and Cultural Resources, hosted by the New Mexico Archaeological Council, the Department of Energy Los Alamos Area Office, the United States Forest Service (Santa Fe National Forest), and Bandelier National Monument (Harmon et al. 2001). A slightly revised version of this paper was presented on March 21, 2002, at the Society for American Archaeology Annual Meetings in Denver, Colorado (Nisengard et al. 2002). The data in the present volume have been revised and expanded from these two earlier presentations.

Chapters 7 through 10 describe in considerable detail the damage sustained by individual archaeological sites in the four separate management units that constitute our study area. These four areas include Rendija Canyon north of the Los Alamos town site, the Engineering Sciences and Applications (ESA) Division, including four technical areas, the Dynamic Experimentation (DX) Division, 10 technical areas, and Facility Management Unit (FMU) 80, 18 technical areas. These four chapters present general lists of all investigated sites, as well as more detailed data on impacts to ancestral (ca. before AD 1800) Native American sites. The details of our study of Homestead period (ca. 1890s to 1942) archaeological sites and Manhattan Project and Early Cold War period archaeological sites are presented in Chapter 12.

Chapter 11 addresses the general impact of the Cerro Grande Fire on historic non-Native American resources. This includes an overview summary of Homestead Period sites, as well as a brief summary of impacted Laboratory buildings and structures dating to the Manhattan Project period (ca. 1943 to 1946), the Early Cold War period (ca. 1947 to 1963), and the Late Cold War period (ca. 1964 to 1989). This chapter also includes a discussion of the management issues related specifically to the impacts of the Cerro Grande Fire on these types of cultural resources. As previously noted, Chapter 12 presents the results of the detailed field analysis of historic non-Native American archaeological impacted by the Cerro Grande Fire.

As part of the CGFA Project we have been very fortunate to work with the staff of LANL's Facility and Waste Operations Division's Cerro Grande Rehabilitation Project (CGRP). The CGRP contracted with the Cultural Resources Assessment Team (CRAT) of the Pueblos of San Ildefonso and Santa Clara to directly assist LANL in the rehabilitation of Ancestral Pueblo archaeological sites (CRAT 2002). This rehabilitation program is briefly outlined in Chapter 13. It is hoped that one or more future reports, written in conjunction with the members of the Pueblo cultural resources assessment team, will be eventually issued that details the long-term results of the rehabilitation project. In addition to the archaeological site rehabilitation efforts, the CGRP has notably embarked on an extensive program of forest rehabilitation and tree thinning that involves not only the Pueblos of Santa Clara and San Ildefonso, but also those of Cochiti and Jemez. The degree to which the Pueblos are involved in all aspects of the rehabilitation effort may be unique in the history of the relations between federal agencies (and universities) and Native American tribes. At the very least, it is certainly a unique endeavor for LANL, the Department of Energy, and the University of California.

Chapter 14 presents several recommendations based on the results of the Cerro Grande Fire Assessment project. These treat the long-term management of cultural resources at LANL including those sites damaged by the Cerro Grande Fire itself, along with general planning considerations to avoid similar fire damage to cultural resources in the future.

Appendix I, prepared from a letter report by Jeffrey S. Dean of the Tree Ring Laboratory of the University of Arizona, summarizes the results of the dendrochronological dating analysis of tree-ring specimens collected during the CGRP from burned or otherwise threatened homesteads at LANL. These samples were collected in the attempt to salvage some useful information…typically from burned fence posts and structural timbers, that might provide a better chronological picture of the Homestead period at LANL than previously available. Appendix I also summarizes dendrochronological data from previous homestead projects.

Our hope is that this report not only serves as an aid to resource managers at LANL, but that it may also be of use to other agencies and Native American tribes in their attempts to deal with, understand, and analyze their own fire issues.